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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/600,469	06/20/2003	Theodore C. Frankiewicz	005864.00287	7280

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TULSA, OK 74103

EXAMINER

LITHGOW, THOMAS M

ART UNIT PAPER NUMBER

1724

DATE MAILED: 02/02/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/600,469	FRANKIEWICZ ET AL.	
	Examiner	Art Unit	
	Thomas M. Lithgow	1724	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 October 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-35 is/are pending in the application.
- 4a) Of the above claim(s) 1-16 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 17-35 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.


Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 June 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.


THOMAS M. LITHGOW
PRIMARY EXAMINER
GROUP 1700

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>26 Jan 2005</u> and <u>20 June 2003</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of group II, claims 17-35 in the reply filed on 24 October 2005 is acknowledged.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 25, 28-29 and 32 are rejected under 35 U.S.C. 102(e) as being anticipated by Smith (US 6749757). Smith discloses a flotation method for separating oil from water [col. 1, lines 8+], in which a generally tangentially oriented plural feed mixture of oil-water (see P1 and P2) is fed to the upright flotation vessel 11 which results in a horizontal pattern over substantially the full cross sectional of the vessel. Water from the vessel 11

which has been cleaned is removed via line 16 and pumped to eductors 20 and then the aerated recycle water is reintroduced into the vessel in a plurality of locations so as to be distributed in a substantially horizontal pattern over the full cross section of the vessel. In regard to claim 29, the floating oil strikes the baffle 31 as a first stage followed by entering slot 33 as a second stage.

4. Claims 17-22, 24-26, 28-30, and 32 are rejected under 35 U.S.C. 102(b) as being anticipated by Broussard (US 5407584). Broussard '584 discloses a flotation process for the removal of oil from water in which a feed stream of oil, water and entrained gas is initially fed to a cyclone separator 14 within the flotation vessel 12 [col. 3, lines 37+]. The cyclonic separator separates inter alia the oil and vapor (gas) from the feed stream [col. 4, lines 70+]. The remaining water and solids are discharged at 75 with the water traveling up and being distributed in a horizontal pattern via an annular space 99 to the vessel proper. An optional pack section 20 is below the annular inlet zone G which acts to collect residual oil still in the descending flowing water [col. 5, lines 60+]. Below the optional coalescer pack section 20 is an eductor arrangement 52a-d [col. 5, lines 5+] in which a plurality of eductors receives cleansed recycled water [col. 5, lines 65+,

col. 8, lines 25] from water outlet 55 and sends it to the eductors 52a-d which draw in air and then the pressurized recycle water is sent back into the vessel 12 with micro-fine bubbles [col. 5, lines 6+] and distributed in a horizontal array by fan flow nozzles 90. The floated oil with associated contaminants are removed via oil bucket 18 in which the oil first flows into the bucket and then is discharged from the vessel. As the coalescer is noted to "filter" oil it must be oleophilic as set forth in claim 19.

5. Claims 25 and 27-29 are rejected under 35 U.S.C. 102(b) as being anticipated by Gibbs (US 2695710). Gibbs '710 discloses a flotation method for the separation of oil from water [col. 5, lines 53-54] in which feed influent waste water is fed up through a riser pipe 16 and deflected horizontally by distributor 18. The wastewater then encounters a countercurrent flow of bubbles introduced by eductor (fig. 6) and pump 31 via header rings 27. The source of water for the eductor is drawn from clean water outlet header ring 28 (fig. 1 and 7).

6. Claims 25, 28 and 33-35 are rejected under 35 U.S.C. 102(b) as being anticipated by Brown (US 2730190). Brown '190 discloses a flotation process for the purification of produced oil-water mixtures [col. 1, lines 19+] in which the oil water mixture is fed via a distributor 313 (fig. 4) and flows

countercurrent to gas bubbles introduced into the pressurized recycled water via eductors (aka venturi 390- see fig. 5) and through distributors 386.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Broussard '584 as applied to claim 17 above, and further in view of GB 2263694. Although Broussard '584 distributes his recycle stream in a horizontal pattern as recited in claim 17 it is noted to not be "radially and horizontally" as recited in claim 23. GB '694 discloses a process and device for purifying water via countercurrent flotation operations. Specifically GB '694 teaches that the introduction of the recycled water containing dissolved gas is desirably performed by an inlet nozzle(s) (see fig. 5-cover) which operate to distribute the water "radially and horizontally" to achieve

the desired uniform flow. To so modify the inlet for recycled water in the Broussard '584 process would have been obvious to one of ordinary skill as it is clearly desirable to achieve a uniform upflow of bubbles to achieve a maximum contacting effect.

9. Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Broussard '584 as applied to claim 25 above, and further in view of either one of Woeflin (US 2047989) or Ettelt (US 3932282). The use of a horizontally deflecting step above the clean water outlet of oil-water flotation purification process is taught by either one of Woeflin '989 or Ettelt '282. In Woeflin '989 see plate 36 and in Ettelt '282 see plate 74 (fig. 1 and 3). The use of such a horizontal distributor prevents any sinking solids from "falling" into the clarified water outlet. Thus the deflector deflects solids away from the outlet which results in a desirable purer water outlet fraction. To so modify the Broussard device would have been obvious to one of ordinary skill in the art.

10. Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Broussard '584 as applied to claim 25 above, and further in view of Humbred (US 5814228). Humbred '28 discloses the countercurrent flotation separation of oil from water in which the down flow of liquid in the

flotation vessel is 1-5 ft. per minute [col. 8, line 38]. This rate allows the countercurrent bubbles to ascend at a reasonable rate while keeping the throughput of the device as high as possible. To so operate Broussard '584 who is silent as to his down flow rate would have been obvious to one of ordinary skill in the art.

11. Claim 33 is rejected under 35 U.S.C. 103(a) as being unpatentable over Broussard '584 as applied to claim 25 above, and further in view of Cairo (US 5080802) or Meekel (US 5584995). Cairo discloses the flotation separation of water from oil in which it was disclosed that the desirable gas bubble size is noted to be 250-300 microns [col. 10, line 50+]. Such a size is a fine compromise between power costs to form the bubbles and the efficiency, which results from that particular size of bubble. Meekel '995 discloses his bubble size at col. 2, line 52 as 100 microns to 5000 microns. To include such a feature in the Broussard '584 process would have been obvious to one of ordinary skill in the art.

12. Claims 34-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Broussard '584 as applied to claim 25 above, and further in view of either one of Brown '190 or Johnson (US 2730240). The use of gas rates as recited in claims 34-35 are taught by either of Johnson '240

[col. 10, lines 10+] or Brown '190 [col. 16, lines 45+]. To employ such a known amount of gas in the Broussard '584 process would have been obvious in view of the prior art recognition of those amounts as having particular utility in countercurrent oil-water flotation operations of Brown '190 and Johnson '240.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas M. Lithgow whose telephone number is 571-272-1162. The examiner can normally be reached on Mon. -Fri..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on 571-272-1166. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read "T.M. Lithgow", with a long, sweeping horizontal line extending to the left.

Thomas M. Lithgow
Primary Examiner
Art Unit 1724

TML